

The Naming of Species

Every recognized species on earth is given a two-part scientific name. This system is called 'binomial nomenclature.' International rules about how to name species ensure that every scientific name is unique worldwide. Scientific names are also designed to tell you something about the species relationships with other species. The scientific name of each species is made up of a generic name (generic epithet) and a specific name (specific epithet). Species that are thought to be most closely related are placed together in a genus. When our scientific understanding of animal species and their relationships changes, it may mean that scientific names change as well.

Unlike scientific names, common names are not unique. As a result, common name usage can lead to confusion about what animal is being referred to and what their relationships are to other animals. For example, the name 'kingfish' is often used to refer to the popular offshore game fish king mackerel (*Scomberomorus cavalla*) that averages 15 to 20 lbs and is related to tunas, but locally the name 'kingfish' can also mean king croaker (*Menticirrhus americanus*), which reaches about 16 inches in length and is related to trout and perch. To further complicate matters, king croaker are also sometimes referred to as 'whiting', however in the northeast 'whiting' is used to generally refer to species of hake and haddock (*Merluccius sp.*) which are fished commercially.

Carl Linnaeus was a Swedish botanist, zoologist, taxonomist, and physician who formalized binomial nomenclature. Linnaeus outlined his ideas for the hierarchical classification of the natural world, dividing it into the animal kingdom (*regnum animale*), the plant kingdom (*regnum vegetabile*), and the "mineral kingdom" (*regnum lapideum*) in his book *Systema Naturae*. This work became the foundation of biological nomenclature. Before Linnaeus, species naming practices varied and many biologists gave the species they described long, unwieldy Latin names, which could be altered at will. The need for a workable naming system was made even greater by the huge number of plants and animals that were being brought back to Europe from Asia, Africa, and the Americas. Linnaeus simplified naming by designating one Latin name to indicate the genus, and one as a "shorthand" name for the species.

Latin Roots and their English Translations

Root	Meaning				
		<i>bicornis</i>	two horned	<i>cirri</i>	orange
<i>acutus</i>	sharp, pointed	<i>borealis</i>	northern	<i>cirro</i>	orange
<i>africanus</i>	African	<i>brady</i>	short	<i>concolor</i>	evenly colored
<i>alatus</i>	winged	<i>branch</i>	gill	<i>coronatus</i>	crowned
<i>albo</i>	white	<i>brasiliensis</i>	Brazilian	<i>crassi</i>	thick/fat
<i>albus</i>	white	<i>brevi</i>	short	<i>crassus</i>	thick/fat
<i>ambi</i>	both	<i>caeruleus</i>	blue	<i>cristatus</i>	crested
<i>americanus</i>	American	<i>caeruleo</i>	blue	<i>croco</i>	yellow
<i>amphi</i>	on all sides	<i>californicus</i>	Californian	<i>crocos</i>	yellow
<i>ampulla</i>	bottle	<i>californiensis</i>	Californian	<i>curvi</i>	curved
<i>anthos</i>	flower	<i>canadensis</i>	white	<i>cyano</i>	blue-green
<i>aquaticus</i>	living in water	<i>candida</i>	white	<i>dactyl</i>	finger
<i>archaeo</i>	ancient	<i>candidus</i>	white	<i>deca</i>	ten
<i>arctos</i>	bear	<i>canescens</i>	grey	<i>deino</i>	terrible
<i>arena</i>	sand	<i>canis</i>	dog	<i>delphi</i>	womb (or dolphin)
<i>arenicolus</i>	sand-dwelling	<i>carcino</i>	crab	<i>delphinus</i>	dolphin
<i>argento</i>	golden	<i>carcinus</i>	crab	<i>delphis</i>	dolphin
<i>argentum</i>	golden	<i>cauda</i>	tail	<i>dermi</i>	skin
<i>argenteus</i>	golden	<i>caudata</i>	tail	<i>dermis</i>	skin
<i>aromatica</i>	fragrant, smelly	<i>cephalo</i>	head	<i>di</i>	two
<i>arthro</i>	jointed	<i>ceps</i>	head	<i>digitatus</i>	finger or toe
<i>astro</i>	star	<i>ceros</i>	horn	<i>dino</i>	terrible
<i>aurantius</i>	golden	<i>ceti</i>	whale	<i>diplo</i>	both, double
<i>aureo</i>	golden	<i>cetus</i>	whale	<i>dorsa</i>	back
<i>aureus</i>	golden	<i>chaete</i>	hair/string	<i>dorsum</i>	back
<i>australis</i>	southern	<i>chinensis</i>	Chinese	<i>draco</i>	dragon
<i>barbatus</i>	bearded	<i>chloro</i>	green	<i>draconis</i>	dragon
<i>bathy</i>	deep	<i>chroma</i>	colored	<i>echinatus</i>	spined
<i>bi</i>	two	<i>chrysos</i>	gold	<i>echino</i>	spiny
<i>bicolor</i>	two colored	<i>cirrhus</i>	orange	<i>electro</i>	electric

<i>elegans</i>	elegant	<i>hyper</i>	above, over	<i>megalo</i>	large
<i>ennea</i>	nine	<i>hypo</i>	below, under	<i>melano</i>	black
<i>enneo</i>	nine	<i>ichthyo</i>	fish	<i>melanus</i>	black
<i>ensatus</i>	sword-like	<i>ichthys</i>	fish	<i>micro</i>	little
<i>erecto</i>	upright, erect	<i>indicus</i>	Indian	<i>minimus</i>	very small
<i>erectus</i>	upright, erect	<i>ingratus</i>	offensive	<i>minor</i>	less than
<i>erythro</i>	red	<i>irregularis</i>	irregular	<i>morph</i>	body/shape
<i>europaeus</i>	European	<i>japonicus</i>	Japanese	<i>nano</i>	tiny
<i>felis</i>	cat	<i>lateralis</i>	side	<i>nitidus</i>	shining
<i>ferox</i>	ferocious, vicious	<i>latero</i>	side	<i>nova</i>	nine
<i>fragilis</i>	fragile	<i>lepido</i>	weak/lightweight	<i>novo</i>	nine
<i>fulvus</i>	dark yellow/beige	<i>lepti</i>	weak/lightweight	<i>obscurus</i>	dark
<i>furcato</i>	forked	<i>lepto</i>	weak/lightweight	<i>obscurus</i>	dark
<i>furcatus</i>	forked	<i>leuco</i>	white	<i>occidentalis</i>	western
<i>gaster</i>	belly	<i>limosus</i>	mud	<i>octo</i>	eight
<i>gastro</i>	belly, stomach	<i>lineatus</i>	lined	<i>odon</i>	tooth
<i>giganto</i>	gigantic	<i>lisso</i>	smooth	<i>odont</i>	tooth
<i>glabrus</i>	light blue	<i>longi</i>	long	<i>odonto</i>	toothed
<i>glauco</i>	light blue	<i>luci</i>	light	<i>ops</i>	eye
<i>gracilo</i>	graceful	<i>luteo</i>	white	<i>ophidio</i>	snake
<i>gracilus</i>	graceful	<i>luteus</i>	white	<i>ophidium</i>	snake
<i>hali</i>	of the sea/salt	<i>lux</i>	light	<i>oiphios</i>	snake
<i>halo</i>	of the sea/salt	<i>macro</i>	big	<i>orcino</i>	monstrous/demonic
<i>helio</i>	sun	<i>maculatus</i>	spotted	<i>orientalis</i>	eastern
<i>hetero</i>	different	<i>major</i>	great	<i>pachy</i>	thick
<i>hexa</i>	six	<i>manatus</i>	manatee	<i>pallido</i>	pale
<i>hippo</i>	horse	<i>maritima</i>	of the sea/salt	<i>pallidus</i>	pale
<i>hippocampus</i>	seahorse	<i>mauro</i>	dark/black	<i>ped</i>	foot/leg
<i>homo</i>	same	<i>maximo</i>	greatest	<i>penta</i>	five
<i>hippus</i>	horse	<i>maximus</i>	greatest	<i>picto</i>	painted
<i>hydro</i>	water	<i>mega</i>	large	<i>pictus</i>	painted

<i>pod</i>	leg/foot	<i>rostrum</i>	snout	<i>tri</i>	three
<i>poly</i>	many	<i>ruber</i>	red	<i>tropicalis</i>	tropical
<i>pseudo</i>	false/fake	<i>rubro</i>	red	<i>uni</i>	one
<i>ptera</i>	wing	<i>rubrum</i>	red	<i>ura</i>	tail
<i>pterus</i>	wing	<i>rubrus</i>	red	<i>veloci</i>	fast
<i>purpureo</i>	purple	<i>rufus</i>	red	<i>velox</i>	fast
<i>purpureus</i>	purple	<i>septa</i>	seven	<i>ventralis</i>	belly
<i>pyro</i>	fire	<i>squilla</i>	shrimp	<i>verrucosus</i>	rough skinned
<i>quadri</i>	four	<i>squillo</i>	shrimp	<i>versicolor</i>	many colored
<i>repens</i>	creeping	<i>striatus</i>	striped	<i>villosus</i>	hairy/shaggy
<i>reticulata</i>	reticulated	<i>sucho</i>	crocodile	<i>viridio</i>	green
<i>reticulatus</i>	reticulated	<i>suchus</i>	crocodile	<i>viridis</i>	green
<i>rhino</i>	nose	<i>testudo</i>	turtle	<i>volans</i>	flying
<i>ryncho</i>	snout	<i>tetra</i>	four	<i>xantho</i>	yellow
<i>rhynchus</i>	snout	<i>teuthis</i>	squid		
<i>rigidus</i>	rigid, stiff	<i>tiburo</i>	shark		

Mini-Latin Lesson

The nominative ending shows that the word is the subject of a sentence. The genitive ending shows possession, like the English word “of” or word ending “’s.” Examples: Rosa, a rose (subject); rosae, of a rose; Linnaeus, Linnaeus (subject); Linnaei, of Linnaeus; godfreyi, of (Robert) Godfrey; henryae, of (Mary) Henry.

	masculine	feminine	neuter
Nominative	<i>-us</i>	<i>-a</i>	<i>-um</i>
Genitive	<i>-i</i>	<i>-ae</i>	<i>-i</i>

Specific names consist of two words: the name of the genus followed by the specific epithet.

Generic names are nouns that can come from anywhere. They can even be meaningless strings of letters, as long as they can be put into a Latin form and pronounced as if they were Latin. In practice, they tend to come from a few main sources.

The second word in a species name, the specific epithet, plays one of three grammatical roles: an adjective modifying the genus name, a noun in the genitive case meaning “of x” (where x is the noun that forms the epithet), or a noun “in apposition to,” or placed next to, the generic name. Examples: *Quercus alba*, “white oak;” *Pinus palustris*, “swamp pine;” *Pinus elliotii*, “pine of (Stephen) Elliott”